BIBLIOMETRIC ANALYSIS FOR PERFORMANCE MEASUREMENT IN BUSINESS, MANAGEMENT AND ACCOUNTING SUBJECT AREA

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Based on our search in the Scopus data base with the phrases: "bibliometric analysis" and "performance measurement" and "business, management and accounting" in title – abstract – keywords we have not found any study considering this topic. Taking into account the importance of performance measurement in business, management and accounting we have conducted a bibliometric analysis in this area in the Scopus database. Our analysis covers the first 1,000 journal published articles with most citations and the period is 42 years (1978-2019). We provide analysis and visualization on distribution of articles per year, top journals, most cited articles, top authors, country-co-authorship as well as in depth keywords co-occurrence analysis by mining the abstracts. This study will serve as a starting point for researchers and practitioners interested in measurement of performance in business, management and accounting.

Keywords: Bibliometric analysis; Performance measurement; Business, management and accounting; Text mining; Data visualization.

INTRODUCTION

The importance of counting and measuring things in science, including citations, is highlighted by the famous quote from Lord Kelvin (1824-1907):

"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of Science, whatever the matter may be."

There is no area of human endeavour so much in need of effective measurement as are organizations. Effective management is based on a foundation of effective measurement. Measurement underlies every system in an organization. Performance measurement systems are the key tools that can be used to transform people's competencies and energy into strategic business results. Identifying, directing and measuring the employees' performances and aligning their effort with the strategic goals of the organizations is what performance measurement is used for.

Performance measurement has been used as a powerful tool for influencing employee and managerial behaviour with ages. Numerous historical data exist that clearly confirm the long-standing awareness of managers regarding the importance of existence and implementation of various measures and indicators of organizational performances. Many of them often note that "what you can measure, is what you can get" or in other words "what you measure, you can expect that you will achieve". Over time, and in accordance with the needs of managers, a number of individual measures have been developed to measure different aspects of business such as operating costs, profit, product quality, production cycle time, and employee productivity. The very data and information

obtained from the implementation of such and similar measures of organizational performance provided managers with a solid basis for monitoring performance, controlling progress towards the set goals, and timely detection of operational issues.

Many of the measures, determinants and performance indicators developed at that time remain relevant for a long period of time. Some of them were internationally accepted, standardized, legally adopted and regularly used in both national and international legislation governing the operation of companies. All of these elements created a basis for institutionalization of acquired knowledge through the formation of some scientific disciplines such as management accounting, financial accounting, HRM, operations management, etc. This enabled such data, in addition to internal needs, to be applied for external reporting to the stakeholders (consumers, shareholders, investors, unions, suppliers, local government and all other interested groups for their work).

However, in the late eighties and the early nineties of the last century, dissatisfaction of managers and scientists, due to inadequacy and obsolescence of these measures in making business decisions and control of operations in modern conditions, became louder and more pronounced. Some of them even state that these traditional performance indicators of companies, which they have successfully applied for decades and even centuries, are now the main brake on business development, and the information obtained from them is inconsistent with today's needs. In that direction is the statement according to which "in the next few years, every company will have to audit the way of measuring organizational performance", (Eccles, 1991).

Performance measurement, when used well, has a potential to be a very powerful, highly functional, and extremely positive force in organizations and for their employees. However, there is a flip or "dark" side of it. Unfortunately, when used poorly, not only does it not live up to its positive promise, but performance measurement can be highly dysfunctional (Spitzer, 2007).

Once the need for new performance measurement tools was recognized, impressive attention was attracted, both among academics and practitioners. New research articles on this topic are being published at a remarkable rate.

Today, performance measurement is central to any textbook, article or research that focuses on organizational efficiency and effectiveness. It is essential for achieving continuous organizational improvement. The only way to ensure that managers do the right thing, in the right way and in the right direction, is by effectively measurement of their own performance. Only in that way they can obtain a real picture of success of organization in achieving the set goals, and the possible need to take corrective action. Its impact on organizational success has long been absolved and well documented.

Like in any rapidly growing research field we have been witnesses of development of many new approaches and performance measurement frameworks, such as Performance Measurement Matrix (Keegan et. al., 1989), Performance Pyramid (Lynch & Cross, 1991), Results-Determinants Framework (Fitzgerald et. al., 1991), of course, Balanced Scorecard (BSC) (Kaplan & Norton, 1992), Performance Prism (Neely et al., 2002), DEA (Charnes et al., 1978) and Banker, Charnes and Cooper (1984), AHP (Saaty, 1977), etc.

Neely (2005) reviews on how the research of performance measurement has developed by using data from the ISI Web of Science Database. To identify publications was used the phrase "performance measurement" and 1,352 articles were identified with total of 31,646 citations. He provides insights for the works that are most frequently cited in performance management, citation/co-citation analysis for the works that are most influential, keywords analysis for these works, distribution of publications per year, and research agenda for the next decade. Based on our search in the Scopus database with the phrases "bibliometric analysis", "performance measurement" and "business, management and accounting" we have not found any references that consider it and that motivated us to perform the analysis and write this article. In our article we focus on 1,000 most cited articles in this subject area and provide insights for the distribution of articles per year, 20 top journals, 5 most cited articles, 10 top authors, country co-authorship analysis and keywords analysis by mining 1000 abstracts. This article will help researchers and practitioners interested in the field of performance measurement in business, management and accounting as a starting point in their research.

The rest of the article is organized as follows. In Section 2 the used data and tools are described. In

Section 3 we present the results on performance measurement articles in business, management and accounting (distribution of articles per year, top journals, most cited articles, top authors, country-co-authorship). In Section 4 we present the keywords co-occurrence analysis, and in Section 5 we conclude the article.

DATA AND TOOLS

For the purpose of this article we have made a search in the SCOPUS database in title-abstract-keywords with the following phase: "performance measurement" on 10 April 2021.

In the analysis we have only focused on articles published in the period from the first year of available article for performance measurement in the database to 2020, and only on one subject area, business, management and accounting, and we have found 4,688 articles in total. Then, we have sorted the articles according to their citation and in the analysis we have included the first 1,000 most cited. The first article in this sample of 1,000 most cited performance measurement articles in business, management and accounting was published in 1978 and the last in 2019, so the covered period is 42 years (1978-2019). We have downloaded the data

(citation information, bibliographical information, and abstract & keywords) in a text (csv) format on the same date. The data visualization of distribution of articles per year, top journals, authors, and most cited articles is made using Excel, while for the country co-authorship network and keywords co-occurrence network we used the VOS viewer software version 1.6.16 available from 25 November 2020.

RESULTS ON PERFORMANCE MEASUREMENT ARTICLES IN BUSINESS, MANAGEMENT AND ACCOUNTING SUBJECT AREA

Distribution of performance measurement articles per year

In Figure 1 we present the distribution of 1,000 performance measurement articles in business, management and accounting subject area per year. The first article was published in 1978 (Langetieg, 1978) and this article has 172 citations. In addition, in this sample of articles, in another five years (1979, 1981, 1983, 1984 and 1988) one article was published. The highest number of the most cited articles (64) is published in the following 3 years: 2005, 2007, 2009.
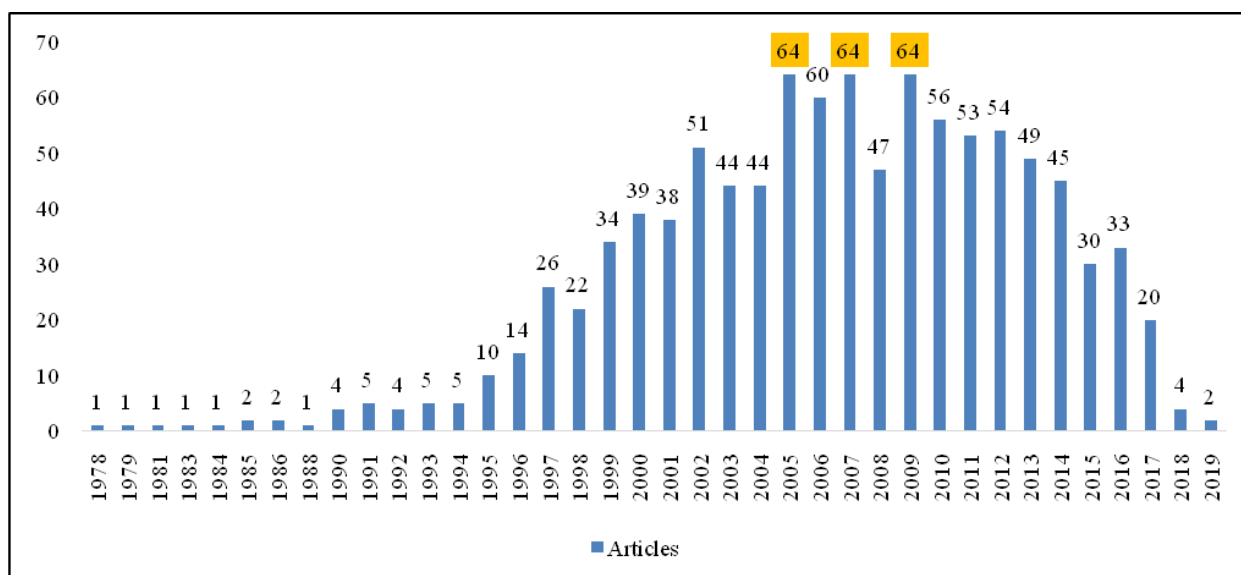

Figure 1: Articles per year

Top journals with performance measurement articles based on their citation

The 1,000 articles are published in 235 journals, and the total of their citations is 108,521. In Figure 2 we present the top 20 journals with the highest

number of citations for our sample of articles. Those 20 journals have 58,738 citations in total, i.e. 54.1% from the total of all citations in the sample. The first ranked is the International Journal of Operations and Production Management (7550 citations) where 56 performance

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measurement articles are published and the total of their citation is 7,550. The Harvard Business Review follows with two articles and 7,414 citations. The article that has the highest number of citation in the whole sample was published in the Harvard Business Review in 1992 and is by Kaplan and Norton (1992). The third ranked journal is Management Accounting Research with

55 articles and 6,760 citations. The forth ranked is the International Journal of Production Economics with 40 articles and 4,321 citations, followed by the journal Accounting, Organizations and Society with 25 articles and 4,217 citations. The Journal of Product Innovation Management is in the 20th rank with 4 articles and 1,197 citations.

Figure 2: Top journals with performance measurement articles in business, management and accounting subject area based on their citation

Top 5 most cited articles

In Table 1 we present the top 5 most cited performance measurement articles in the subject area business, management and accounting.

The most cited article (6,704 citations) is "The Balanced Scorecard-Measures that Drive Performance" by Kaplan and Norton (1992) published in the Harvard Business Review. In Neely (2005) the article by Kaplan and Norton (1992) was the most cited in the observed period and it had 119 citations. In the 1995-2004 period only in two years (1996 and 1997) it was in the second place. The second one with 1,200 citations is "Performance Measures and Metrics in Supply Chain Environment" by Gunasekaran, Patel and Tirtiroglu (2001) published in the International

Journal of Operations and Production Management. "Accounting Earnings and Cash Flows as Measures of Firm Performance: The Role of Accounting Accruals" is the third ranked article with 1,138 citations. This article is by Dechow (1994) and it is published in Journal of Accounting and Economics. The fourth with 853 citations is "Performance Measurement for Green Supply Chain Management" by Hervani, Helms and Sarkis (2005) published in the Benchmarking journal. The fifth with 820 citations is "Performance Management: A Framework for Management Control Systems Research" by Otley (1999) published in the Management Accounting Research journal. These top 5 cited articles are published in the top journals listed in Figure 2.

Table 1: The most cited performance measurement articles in business, management and accounting subject area

Authors	Title	Year	Source title	Cited by
Kaplan R.S., Norton D.P.	The Balanced Scorecard-Measures that Drive Performance	1992	*Harvard Business Review*	**6,704**
Gunasekaran A., Patel C., Tirtiroglu E.	Performance Measures and Metrics in A Supply Chain Environment	2001	*International Journal of Operations and Production Management*	**1,200**
Dechow P.M.	Accounting Earnings and Cash Flows as Measures of Firm Performance, the Role of Accounting Accruals	1994	*Journal of Accounting and Economics*	**1,138**
Hervani A.A., Helms M.M., Sarkis J.	Performance Measurement for Green Supply Chain Management	2005	*Benchmarking*	**853**
Otley D.	Performance Management: A Framework for Management Control Systems Research	1999	*Management Accounting Research*	**820**

Top cited authors of performance measurement articles

In total there are 1,925 authors of performance measurement articles and we have identified the top 10 most cited authors presented in Table 2. Kaplan, R. C. is the most cited author in performance measurement with 7,110 citations based on two published articles, followed by Neely, A. (2,337 citations), Bourne, M. (2,392 citations), Ittner, C.D. (1,873 citations), Larcker, D.F. (1,604 citations), Sarkis, J. (1,565 citations), Gunasekaran, A. (1,536 citations), Platts, K., (1,365 citations), Bititci, U.S. (1,322 citations) and Garengo, P. (1,242 citations).

Table 2: Top cited authors with articles in performance measurement in the subject area business, management and accounting

Author	Articles	Citations
Kaplan, R.S.	2	7110
Neely, A.	13	2537
Bourne, M.	13	2392
Ittner, C.D.	5	1873
Larcker, D.F.	4	1604
Sarkis, J.	7	1565
Gunasekaran, A.	6	1536
Platts, K.	6	1365
Bititci, U.S.	13	1322
Garengo, P.	10	1242

Country-co-authorship analysis

We were using the VOS viewer software to create the country co-authorship network. The unit of analysis is each country, while the type of analysis is co-authorship. We have set to include countries with a minimum number of 5 articles per country. From 82 countries, 31 meet this threshold and the country co-authorship network is presented in Figure 3. The items in Figure 3 are presented with labels and circles, while the lines show links between items. According to van Eck and Waltman (2020) who have developed the VOS viewer software, the item that has a larger label and circle has a higher weight, while if the distance between two items is short that indicates a stronger relationship. In addition, they point out that the strength of link is presented through a numeric value and the higher the value, the stronger the link, while the total link strength (TLS) is the sum of the strength of links of one item with the other items. Items that have the same colour belong to same cluster, and from Figure 3 we can see that there are 6 clusters.

The largest label and circle is for the United States, which means that this item has the highest weight. In Figure 4 there are 20 presented countries with number of articles and the TLS, so that they are ordered based on the number of documents. The United States have 271 articles, followed by the United Kingdom (262 articles), Australia (78 articles), Italy (60 articles), Canada (49 articles), Netherlands (46 articles), India (37 articles),

Germany (36 articles), Sweden (33 articles), Finland (27 articles), etc., while Malaysia is in the 20th place with 13 articles. The United Kingdom has the highest TLS (109), followed by the United States with a TLS of 96. The link strength between Australia and the United States is 16, between the United Kingdom and the United States is 15,

between Canada and the United States is 6. In addition, the link strength between China and the United Kingdom is 8, while between Germany and the United Kingdom it is 2. Therefore, we can state that if the distance between two countries is not long that does not mean higher co-authorship by default.
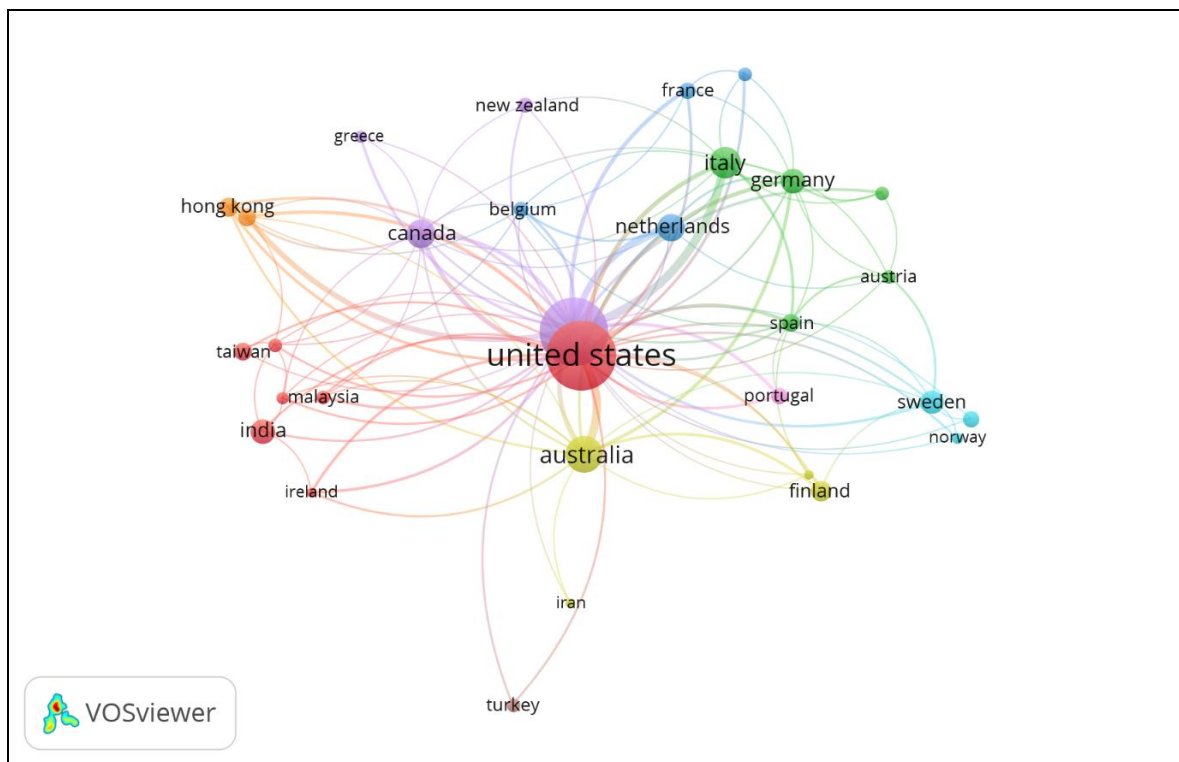

Figure 3: Country co-authorship on performance measurement articles in business, management and accounting subject area

Figure 4: Top 20 countries with performance measurement articles in subject area

Country	Documents	Total link strength
United States	271	96
United Kingdom	262	109
Australia	78	44
Italy	60	34
Canada	49	27
Netherlands	46	22
India	37	7
Germany	36	22
Sweden	33	12
Finland	27	8
Hong Kong	22	17
China	20	23
Spain	20	18
Taiwan	20	4
France	18	11
Brazil	18	3
Portugal	16	8
Belgium	15	12
New Zealand	14	5
Malaysia	13	8

TEXT MINING FOR KEYWORDS CO-OCCURRENCE ANALYSIS

Keywords co-occurrence analysis

In order to create network visualization for keywords co-occurrence we are using the abstracts of 1,000 articles on performance measurement in business, management and accounting subject area in the VOS viewer software. In the analysis, structured abstract labels and copyright statements are ignored. We have chosen the binary counting methods and minimum number of occurrences of a keyword to be 10. Based on the performed text mining in abstracts, of 15,624 keywords, 434 meet the set threshold. For each of these 434 keywords a relevance score is calculated based on which those that are the most relevant are selected. The default choice is to select 60% of the most relevant keywords and we have confirmed that, so that the sample of keywords to be selected is 260. In

addition, we have excluded words such as: item, survey data, assumption, return, present study, accountability, last decade, important issue, previous research, individual, publication, argument, formulation, potential, today, applicability, detail, turn, scale, overview, total, recent year, decade, date, contrast, data collection, empirical data, subject, series, further research, form, end, semi, observation, empirical analysis, comparison, research limitations, implications, important role, empirical evidence, idea, better understanding, advantage, suggestion, place, sample, empirical study, notion, emphasis, direction, practical implication, period, originality values which do not have relevant meaning in our analysis. Besides, we have excluded names of countries (USA, India) because country co-authorship is performed and presented in the previous section. Our final sample of keywords consists of 200 keywords. In Figure 5 the network visualization for keywords co-occurrence is presented.
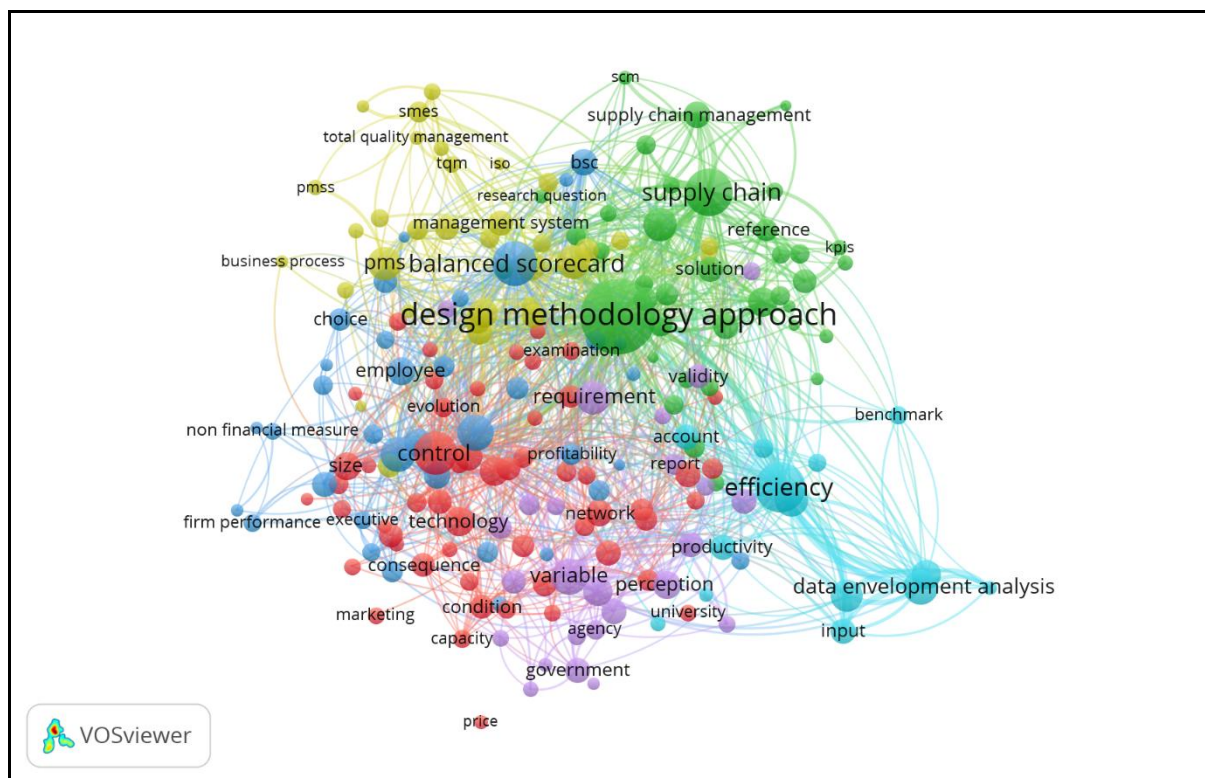

Figure 5: Keywords co-occurrence network visualization

The 200 keywords are grouped in 6 clusters. Cluster 1 is the red cluster and it contains 54 keywords. The largest keyword is control with 79 occurrences, 174 links and TLS of 481. This cluster includes keywords: accounting, management accounting, management control, risk, leadership, research and development, product development, technology, marketing, etc. Cluster 2 is the red one and counts 38 keywords. The largest keyword is design methodology approach with 188 occurrences, 194 links and a TLS of 1224. This is the largest item in the whole network. Keywords that are part of this cluster are: analytic hierarchy process, key performance indicators, literature review, performance measurement, supply chain management, etc. Cluster 3 is the dark blue cluster with 36 keywords. The largest one is balanced scorecard with 83 occurrences, 168 links and a TLS of 561. Keywords in this cluster are: strategic objective, CEO, customer satisfaction, employee, intellectual capital, learning, growth, financial performance, manufacturing firm, etc. Cluster 4 is the yellow cluster with 33 keywords. The largest one is performance management system, i.e. PMS with 51 occurrences, 122 links and TLS of 262. The following keywords belong to this cluster: business process, information technology, information system, SMEs, total quality management i.e. TQM, etc. Cluster 5 is the purple one and counts 25 items. The largest one is variable and other keywords are: benchmarking, public sector, government, local government, service quality, etc. Cluster 6 is the light blue cluster with 14 keywords. The largest one is

efficiency with 101 occurrences, 165 links and TLS of 589. Keywords that belong to this cluster are: benchmarking, DEA, DEA model, input, output, etc.

Based on the keywords analysis we have identified that methodologies used for performance measurement were: balanced scorecard (BSC) data envelopment analysis (DEA), analytic hierarchy process (AHP), analytic network process (ANP).

Balanced Scorecard concept was developed 30 years ago, as a result of a year-long research with twelve companies on the future of performance measurement, Robert S. Kaplan and David P. Norton published the summarized results in their 1992 *Harvard Business Review* article: "The Balanced Scorecard: Measures that Drive Performance". BSC was the first original, consistent and logical approach that with its "4box" simplicity was providing balance between financial and non-financial measures, leading and lagging indicators and short and long-term objectives. The authors proposed to managers, in addition to traditional financial measures, to fill out the empty boxes with limited number of customized measures from three other business perspectives: Innovation and Learning, Internal Business and Customer Perspective. Each perspective's measures should provide answers to the performance questions: How do we look to shareholders? (Financial Perspective); How do customers see us? (Customer Perspective); What must we excel at? (Internal Business Perspective); Can we continue to improve and create value? (Innovation and Learning Perspective). They endorsed that by "putting vision and strategy in the centre of the measurement system" improved organizational performance can be expected, but only if appropriate changes in human behaviour are made and necessary actions to achieve those goals are carried out (Kaplan & Norton, 1992).

At first introduced as performance measurement reporting tool in the early 1990s by Robert S. Kaplan and David P. Norton (1992), this approach evolved relatively fast in strategic management system (Kaplan & Norton, 1996), with a clear ambition to go further toward an all-encompassing strategic and control system (Kaplan & Norton, 2001). Despite its unchanged fundament of four perspectives with limited number of measures classified and carefully linked with the strategy, many new elements and features represented its historical development. The evolution of Balanced Scorecard distinguished three main evolution phases in its development (Eftimov & Serafimoska, 2007).

In the second phase of BSC development "translating the vision" management process was introduced in order to help managers to translate "lofty vision and strategy statements into action at the local level" (Kaplan & Norton, 1996) by gaining consensus on how to clarify the vision and company strategy and by identifying strategic objectives in each perspective. "Communicating and linking" process was intended for everyone in the organizations to become familiar with the company strategy and objectives and to ensure strategic alignment between the different business units and individuals working there.

One of the biggest enhancements in the third phase of BSC development has probably been done by introducing the Strategy Map concept (Kaplan & Norton, 2000). A strategy map was providing one-page visualization of the strategy with precise overview of the objectives of each perspective and their integration and combination toward execution of the strategy. This enabled better communication through the organization, improved employees' understanding and awareness of strategy and allowed better execution and management of the strategy.

"The creation of a system of measurement that would enable companies to keep track of many dimensions in a systematic way is an incredibly powerful concept" (Bontis et. al. 1999), that in 1997 the *Harvard Business Review* labelled as one of the 75 most influential ideas of 20th century.

Balanced Scorecard concept significantly differed from any other performance measurement system and attracted impressive attention, both among academics and practitioners. Associated literature confirmed the originality and unity (Epstein & Manzoni, 1997; Banker et. al, 2000; Ittner & Larcker, 2003; Ittner, Larcker, & Randall, 2003; Lawson et. al., 2003; Bremser & Barsky, 2004; Davis and Albright, 2004; Phillips & Louvieris, 2005; Alsyouf, 2006; Chia, Goh and Hum, 2009). The Balanced Scorecard has been successfully implemented in almost all types of organizations: large, medium and small, production and services, public and private, profit or non-profit organizations. Research shows that 60 per cent of *Fortune 1000* companies have experimented with BSC (Silk, 1998).

Data envelopment analysis is the leading non-parametric methodology for measurement of performance of decision making units (DMUs) that use the same inputs to produce the same outputs. It was originally developed by Charnes, Cooper and Rhodes (1978) and Banker, Charnes and Cooper (1984). It has an advantage over the regression analysis because more than one output can be included in the analysis and it provides a reference set (benchmarks) for DMUs that are not performing well, as well as targets for improving their performance in the future. In the period from 1978 to the end of 2016 there were 10,300 journal articles published on DEA (Emrouznejad & Yang, 2018). To examine the impact of contextual variables on performance DEA+OLS should be used as proposed in Banker and Natarajan (2008). In addition, Demerjian, Lev, and McVay (2012) have proposed a measure for managerial ability but they have not considered the banking industry, so Banker and Tripathi (2021) have proposed and validated a measure for organizational ability in the banking industry. For measurement of performance in banking, see the bibliometric analysis by Cvetkoska and Savic (2021).

The multi-criteria decision making (MCDM) is a rapidly growing field of management science. According to the literature review study by Mardani et al. (2015), the analytic hierarchy process is the most applied method. AHP was developed by Saaty (1977) and it allows to evaluate alternatives regarding the 7 ± 2 criteria and to choose the best one for the stated goal. The problem with AHP is structured as hierarchy where the goal is on the top followed by criteria, sub-criteria (if any) and the alternatives in the bottom. Vaidya and Kumar (2006) provide literature review of AHP application. For measurement of performance of manufacturing organization with AHP, see Dey and Cheffy (2012), for intensive care units, see Dey, Hariharan and Clegg (2006), for service performance, see Lin, Lee and Che (2009). Pradhan, Olfati and Patel (2019) provide a literature review for integration and application of AHP with DEA. In addition, for integration of AHP with balanced scorecard for performance measurement of petroleum supply chain see: Varma, Wadhwa and Deshmukh (2008). Besides, Thomas L. Saaty has developed the analytic network process (ANP) where the problem is not structured in a hierarchy as in the AHP, but it has a network structure with dependence and feedback. For integration of ANP with balanced scorecard,

see Bhattacharya, Mohapatra and Kumar (2014), while for integration of both AHP and ANP with balanced scorecard see Leung, Lam and Kao (2006).

CONCLUSIONS AND IMPLICATIONS

In this article we provide a bibliometric analysis for performance measurement in the field of business, management and accounting. Bibliometrics, sometimes referred to as scientometrics analysis, provide us quantitative evaluation of scientific articles and other published works, including the authors of these articles, the journals where the works were published and the number of times they were cited. The use of such methods in the analysis of a body of literature is to reveal the historical development of subject fields and patterns of authorship, publication, and use. Such articles can be extremely useful for researchers in order to gain an overview of the research field of their interest and links with close research areas.

The article identifies the key contributors in the field of performance measurement and most influential concepts in the last four decades based on 1,000 most cited journal published articles from the SCOPUS database. The main goal of this article is to optimize researchers' time allocations and make them more efficient and effective. This study can primarily serve as a starting point for young researchers interested in measurement of performance in business, management and accounting. Also, it can be helpful for the professionals and managers to choose the most appropriate system or concept for measurement of their organizational performance from the most influential ones. And thirdly, it can be useful, as it is perhaps the only method that can be used to compare and estimate research strengths and weaknesses of institutions or countries. It can help policy makers in shaping their strategies and policies for the competitiveness improvement pointing out the priority actions for the authorities to improve and increase the competitiveness level of science (Krstić et al., 2019).

Summary of Research Results: We summarize our findings in 6 points: 1) Based on the distribution of articles by year, we found that in the observed period of 42 years (1978-2019), in 2005, 2007 and 2009 the highest number of the most cited articles (64) was published in each year; 2) We have identified 235 different journals with total of 108,521 citations, and the top 20 journals participate

with 54.1% in the total number of citations. The International Journal of Operations and Production Management is first ranked, followed by the Harvard Business Review and the Management Accounting Research; 3) We have identified the top 5 most cited articles, so that the most cited article is by Kaplan and Norton (1992) with 6,704 citations, published in the Harvard Business Review; 4) In total there are 1,925 different authors, and we have presented the top 10. Kaplan R. C. is the most cited (7,110 citations), followed by Neely, A. (2,337 citations), and Bourne, M. (2,392 citations); 5). In total there are 81 countries, but only 31 satisfy the threshold to have a minimum of 5 articles. The United States are the most influential in performance measurement in business, management and accounting ranked in the first place with 271 articles, followed by the United Kingdom (262 articles) and Australia (78 articles). Besides, we have found that the short geographical distance does not mean greater co-authorship; and 6) Based on the created keywords co-occurrence network, there are 200 keywords grouped in 6 clusters and the keywords with the highest weight for each cluster are: control, design methodology approach, balanced scorecard, PMS, variable and efficiency. Also, we found that used methodologies for performance measurement in business, management and accounting are: balanced scorecard, DEA, AHP, ANP, etc. The global Corona virus (COVID-19) pandemic has changed the work conditions (in most of the sectors employees work from home), consumer needs and behaviour that reflect in the achieved companies' performance. By using the balanced scorecard, DEA, AHP, ANP (separately and as in integrated approaches) researchers and practitioners interested in performance measurement in business, management and accounting can perform further studies by which they will enrich the literature. Also, we have pointed out studies on measurement of managerial ability that will open many doors in this subject area. In addition, the rapid growing discipline of data science provides machine learning algorithms that can be applied for performance measurement in business, management and accounting.

Limitations of the research:

(1) The analysis in this article is based only on the SCOPUS database. SCOPUS is a publication service provided by Elsevier collecting bibliographic information from journals worldwide. If it is extended to other databases, such as ISI or Web of Science (a publication service provided by Thomson Reuters collecting

bibliographic information from journals worldwide), it is possible that some new authors or articles join the most influential ones.

(2) The research reported in the article is limited to work that deals directly with performance measurement in business, management and accounting subject area. Bearing in mind the fact that many authors (un)intentionally or (un)justifiably use "performance measurement" and "performance management" as synonyms (but they are not), we plan to extend our research with the phrase "performance management" in order to make sure that certain authors, journals or countries are not accidentally diminished by the real impact they have on the development of this discipline in business, management and accounting.

(3) The researchers and practitioners should be aware that citation analyses naturally favour older rather than more recent publications. Some authors claim that articles in the field of performance measurement tend to take three to five years to reach a reasonably consistent level of on-going citation (Neely, 2005). Accordingly, it is possible that some quality articles or concepts have not yet reached a high citation, i.e. have not reached their popularity and are not presented in this article.

(4) Bibliometric analyses are based on two major units: the scientific publication as an indicator of research output and citations received by them as a proxy of their scientific impact or influence on scholarly community. "Also, they are far from representing the whole spectrum of research and scientific activities, as research does not necessarily lead to publication. Along these lines, bibliometric indicators do not provide any insights on the social or economic impact of research and are, thus, limited to assessing the impact of research within the scientific community", (Haustein & Larivière, 2015).

Proposal for further research: Bearing in mind the fact that many authors (un)intentionally or (un)justifiably use "performance measurement" and "performance management" as synonyms (but they are not), we plan to extend our next research with the phrase "performance management" in order to make sure that certain authors, journals or countries are not accidentally diminished by the real impact they have on the development of this discipline in business, management and accounting. Also, we plan to include other relevant databases than SCOPUS in our research, such as ISI or Web of Science in order to confirm or extend the scope of

authors or articles that shape this research field of interest. This is clearly a substantial research agenda for those interested in performance measurement.

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Ključne reči: Bibliometrijska analiza; Merenje učinka; Poslovanje, upravljanje i računovodstvo; Iskopavanje teksta; Vizualizacija podataka.